

1 **Listing of the Claims**

2 No amendment has been made to the claims in this response; however, the claims are listed for the
3 convenience of the Examiner.

4 **In the Claims:**

5 1. (Previously Presented) A method of distributing a processing load in a cluster having a
6 plurality of resources, comprising the steps of:

7 (a) designating a first resource as an intake providing a specific type of service for
8 a first session;

9 (b) directing a plurality of new client requests for the specific type of service by
10 the cluster to the intake to form a first group of clients, wherein each client in the first group
11 continues to receive the specific type of service only from the first resource for as long as the specific
12 type of service is provided;

13 (c) determining that a second resource be designated as a new intake, to balance
14 the processing load among the plurality of resources;

15 (d) designating the second resource as the new intake and providing an intake
16 message from the first resource to the plurality of resources in the cluster identifying the second
17 resource as the intake; and

18 (e) directing successive new client requests for services by the cluster to the new
19 intake to form a second group of clients, wherein each client in the second group continues to receive
20 services only from the second resource for as long as those services are provided.

21 2. (Original) The method of Claim 1, wherein the step of designating a first resource as an
22 intake comprises the steps of:

23 (a) assigning a unique identifier to each resource in the cluster; and

24 (b) selecting the resource that will be designated as a function of its identifier.

25 3. (Original) The method of Claim 1, wherein the step of designating a first resource as an
26 intake comprises the steps of:

27 (a) calculating a rating value for each resource in the cluster; and

28 (b) selecting the resource that will be designated as a function of the rating value.

29 4. (Original) The method of Claim 1, wherein the step of designating a first resource as an
30 intake comprises the steps of:

1 (a) calculating a time-out; and

2 (b) selecting the resource that will be designated as a function of the time-out.

3
4 5. (Original) The method of Claim 1, wherein the step of directing the plurality of new client
5 requests for service to the intake to form the first group of clients comprises the steps of:

6 (a) receiving a request for service from a new client, wherein the request is
7 received by a resource other than the intake; and

8 (b) directing the client to the intake.

9 6. (Original) The method of Claim 1, wherein the step of directing the plurality of new client
10 requests for service to the intake to form a first group of clients comprises the steps of:

11 (a) receiving a request for service from a new client, wherein the request is
12 received by a resource other than the intake; and

13 (b) transferring the request for service by the new client to the intake.

14 7. (Original) The method of Claim 1, further comprising the steps of:

15 (a) detecting a termination in a service being provided to a client by one of the
16 plurality of resources;

17 (b) determining that the client is requesting a service from the cluster; and

18 (c) directing the client to a current intake for the service requested by the client.

19
20 8. (Original) The method of Claim 1, wherein the step of determining that the second
21 resource be designated comprises the steps of:

22 (a) calculating a load value of the first resource;

23 (b) comparing the load value to a threshold value; and

24 (c) designating the second resource as the new intake, if the load value exceeds the
25 threshold value.

26 9. (Original) The method of Claim 1, wherein the step of designating the second resource as
27 the new intake comprises the steps of:

28 (a) calculating a rating value for each resource in the cluster; and

29 (b) selecting the resource that will be designated as a function of the rating value.

30 ///

1 10. (Original) The method of Claim 1, further comprising the step of periodically
2 exchanging status messages between the plurality of resources, wherein the step of determining that
3 the second resource be designated occurs if a status message has not been received from the intake
4 within a predetermined period of time.

5 11. (Original) The method of Claim 10, wherein the step of designating the second resource
6 as the new intake comprises the step of the second resource assuming the designation as the new
7 intake after the second resource fails to receive the status message from the first resource within the
8 predetermined period of time, said status message identifying the first resource as the intake.

9 12. (Previously Presented) The method of Claim 1, wherein the step of designating the
10 second resource as the new intake comprises the steps of:

11 (a) receiving the intake message at the plurality of resources in the cluster,
12 including the second resource; and

13 (b) updating a list at each of the plurality of resources in the cluster, said list
14 indicating that the second resource has been designated as the new intake.

15 13. (Original) The method of Claim 12, further comprising the step of providing a message
16 from the second resource to the plurality of resources in the cluster identifying the second resource as
17 the new intake to confirm that the second resource has accepted its designation as the new intake and
18 to ensure that the plurality of resources are aware of the new intake.

19 14. (Original) The method of Claim 1, wherein the cluster comprises a plurality of nodes on
20 which the plurality of resources are implemented, and wherein the step of designating the second
21 resource as the new intake comprises the steps of:

22 (a) determining that the second resource and first resource reside on a common
23 node;

24 (b) updating a list stored on the common node, said list indicating that the second
25 resource is designated as the intake; and

26 (c) providing a message from the second resource designating the second resource
27 as the intake.

28 15. (Original) The method of Claim 1, further comprising the step of the first resource
29 providing a data message to the plurality of resources in the cluster, said data message including an
30 identification of the first resource and a load value of the first resource.

1 16. (Original) The method of Claim 1, further comprising the following steps that are carried
2 out by a client:

- 3 (a) storing a network address for one resource in the cluster;
- 4 (b) automatically attempting to connect to said one resource at the network
5 address;
- 6 (c) receiving from the cluster a network address for the intake for a service
7 requested by the client; and
- 8 (d) automatically attempting to connect to the network address for the intake.

9 17. (Original) A machine readable medium having machine-executable instructions for
10 performing the steps of Claim 1.

11 18. (Original) A machine readable medium having machine-executable instructions for
12 performing the steps of Claim 16.

13 19. (Previously Presented) A system for distributing a processing load in a cluster,
14 comprising:

- 15 (a) at least one processor for implementing the cluster, said at least one processor
16 comprising a plurality of resources that provide services to a plurality of clients;
- 17 (b) an interface for coupling said at least one processor to the plurality of clients;
- 18 (c) a memory in which a plurality of machine instructions are stored; and
- 19 (d) said machine instructions, when executed by said at least one processor
20 implementing:

21 (i) a first resource operatively connected to the plurality of clients, said
22 first resource being designated as an intake that accepts requests from new clients for a service, and
23 in response thereto, forms a first group of clients that continue to receive services only from the first
24 resource for as long as those services are provided and are needed;

25 (ii) said first resource determining to designate a second resource from
26 among the plurality of resources as a new intake, the second resource being connected in
27 communication with the first resource;

28
29 ///

30 ///

1 (iii) designating the second resource as the new intake to accept successive
2 new client requests for service, forming a second group of clients that continue to receive services
3 from the second resource for as long as those services are provided and are needed; and

4 (iv) providing an intake message from the first resource to the plurality of
5 resources in the cluster identifying the second resource as the intake.

6 20. (Original) The system of Claim 19, wherein the machine instructions further cause a new
7 client request for service to be directed to a resource currently designated as the intake.

8 21. (Original) The system of Claim 19, wherein the machine instructions are executed in a
9 plurality of instances by a plurality of processors.

10 22. (Original) The system of Claim 19, wherein a first instance of the machine instructions
11 for load balancing are executed to manage the first resource and a second instance of the machine
12 instructions for load balancing are executed to manage the second resource, said machine instructions
13 causing said first instance to communicate with said second instance, and wherein said first instance
14 of the machine instructions cause the first resource to transfer the intake designation to the second
15 resource.

16 23. (Original) The system of Claim 19, further comprising a client device having a client
17 processor and a client memory in which are stored:

18 (a) machine instructions; and

19 (b) a list that includes at least one network address corresponding to at least one
20 resource in the cluster, said machine instructions stored in the client memory causing the client
21 processor to:

22 (i) automatically attempt to connect to said at least one resource using the
23 network address corresponding thereto;

24 (ii) receive from the cluster an intake network address corresponding to a
25 resource designated as the intake for said at least one service; and

26 (iii) automatically attempt to connect to the intake network address.

27 24. (Previously Presented) A method of distributing a processing load among a cluster of
28 nodes, each node providing at least one of a plurality of different types of services, comprising the
29 steps of:

30 (a) designating a first instance of a first type of service on a first node as an intake;

1 (b) directing new client requests for said first type of service to the intake to form
2 a first group of clients, wherein each client in the first group continues to receive services only from
3 the first instance on the first node for as long as those services are provided and are needed;

4 (c) determining that a second instance of the first type of service be designated as
5 a new intake for the first type of service;

6 (d) designating the second instance as the new intake for the first type of service
7 and providing an intake message from the first node designated as the intake for the first instance to the
8 nodes in the cluster identifying the second instance designated as the new intake for the first type of
9 service; and

10 (e) directing a plurality of successive new client requests for the first type of
11 service to the new intake to form a second group of clients, wherein each client in the second group
12 continues to receive services only from the second instance for as long as those services are provided
13 and are needed.

14 25. (Original) The method of Claim 24, wherein the step of directing new client requests for
15 said first type of service to the intake to form a first group of clients comprises the steps of:

16 (a) receiving from a new client a request for said first type of service, wherein the
17 request is received at a node other than the node on which the intake is designated; and

18 (b) directing the client to the intake.

19 26. (Original) The method of Claim 24, wherein the step of directing a plurality of new
20 client requests for service to the intake to form a first group of clients comprises the steps of:

21 (a) receiving from a new client a request for said first type of service, wherein the
22 request is received at a node other than the node on which the intake is designated; and

23 (b) transferring the request for service by the new client to the intake.

24 27. (Original) The method of Claim 24, wherein the step of determining to designate a
25 second instance as the new intake comprises the steps of:

26 (a) calculating a load value for the first node, said load value being normalized to
27 enable a uniform comparison to corresponding load values for the other nodes of the cluster;

28 (b) comparing the load value for the first node with a threshold value; and

29 (c) designating the second instance as the new intake, if the load value exceeds the
30 threshold value.

1 28. (Original) The method of Claim 24, wherein the step of designating the second instance as
2 the new intake for the first type of service comprises the steps of:

3 (a) calculating a rating value for each resource in the cluster; and

4 (b) selecting the resource that will be designated as a function of the rating value.

5 29. (Original) The method of Claim 24, further comprising the step of periodically exchanging
6 status messages between the plurality of nodes, wherein the step of determining that the second
7 resource be designated occurs if a status message has not been received from the intake within a
8 predetermined period of time.

9 30. (Original) The method of Claim 29, wherein the step of designating the second instance
10 as the new intake for the first type of service comprises the steps of a second node assuming authority
11 to designate the second instance as the new intake; and automatically selecting the second instance as
12 the new intake from a plurality of instances of the first type of service on the second node after the
13 second node fails to receive the status message from the first instance within a predetermined period
14 of time, said status message identifying the first service instance as the intake.

15 31. (Previously Presented) The method of Claim 24, wherein the step of designating the
16 second instance as the new intake for the first type of service comprises the steps of:

17 (a) receiving the intake message at the nodes in the cluster, including a second
18 node on which the second instance is executing; and

19 (b) updating a list at the nodes in the cluster, said list indicating that the second
20 instance has been designated as the new intake.

21 32. (Original) The method of Claim 31, further comprising the step of providing a message
22 from the second node to the nodes in the cluster, said message identifying the second instance as the
23 new intake to confirm that the second instance has accepted its designation as the new intake and to
24 ensure that the plurality of nodes are aware of the new intake.

25 33. (Original) The method of Claim 24, wherein the step of designating the second instance
26 as the new intake comprises the steps of:

27 (a) determining that the second instance and first instance reside on a common
28 node;

29 (b) updating a list stored on the common node, said list indicating that the second
30 instance is designated as the new intake; and

1 (c) providing a message from the common node to the nodes in the cluster, said
2 message identifying the second instance as the new intake.

3 34. (Original) The method of Claim 24, further comprising the step of providing a data
4 message from the first node to the plurality of nodes in the cluster, said data message including an
5 identification of the first instance and a load value of the first node.

6 35. (Original) The method of Claim 24, further comprising the step of sending a service
7 message from the first instance to a control process executing on the first node, said service message
8 including a unique identification of the first instance and operational status parameters of the first
9 instance that the control process uses to calculate a rating value for the first instance and a load value
10 for the node that are used to determine a future intake designation.

11 36. (Previously Presented) A system for distributing a processing load in a cluster of
12 resources, comprising:

13 (a) means for enabling communication between the resources comprising the
14 cluster;

15 (b) means for enabling communication between the resources comprising the
16 cluster and a plurality of clients requesting services from said resources;

17 (c) means for designating a first resource as an intake so that the first resource
18 accepts requests from new clients for a service, and in response thereto, forms a first group of clients
19 that continue to receive the service only from the first resource for as long as the service is provided
20 and needed;

21 (d) means for determining to designate a second resource as a new intake;

22 (e) means for designating a second resource as the new intake so that the second
23 resource begins to accept requests from new clients for the service, and in response thereto, forms a
24 second group of clients that continue to receive the service only from the second resource for as long as
25 the service is provided; and

26 (f) providing an intake message from the first resource to the plurality of resources
27 in the cluster identifying the second resource as the intake.
28
29
30